BRUHAT BANGALORE MAHANAGARA PALIKE

COMPREHENSIVE DEVELOPMENT FOR ROADS AND DRAINS IN WARD NO. 5 AND 6 UNDER CMC AND TMC GRANTS, BYATARAYANAPURA SUB-DIVISION, YELAHANKA ZONE, BYATARAYANAPURA DIVISION

ESTIMATED COST
Rs. 1100.00 LAKHS

Detailed Project Report
Volume-II
(Estimates)
April 2017

TEJUS CONSULTANTS
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1. Improvements to Roads and Drains in Agrahara Layout and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division. Agrahara

KEY MAP –01. AGRAHARA LAYOUT

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BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains in Agrahara and surrounding areas in ward No 05 - Jakkur. Byatarayanapura Sub Division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Agrahara	Cum							
	4th Cross		1	135.00	0.60	0.30	24.30		
	Cross Road to 4th Cross		1	80.00	0.45	0.30	10.80		
	Gopal House Road		1	50.00	0.45	0.30	6.75		
	CC road		1	170.00	0.45	0.30	22.95		
							64.80	186.92	12112.42
2	KSRRB M200-13.1. **Dismantling of existing structures** like culverts, Bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceble material and stacking the serviceble material with all lifts complete as per specifications. II. By mechanical means, A. **Cement concrete Grade M-15 & M-20** (P.No.137, I.No.18.20 of PW,P&IWTD SR 2016-17)								
	Road portion	Cum							
	CC road		1	170.00	3.30	0.10	56.10		
							56.10	466.20	26153.82
3	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	4th Cross		1	135.00	4.80	0.20	129.60		
	Cross Road to 4th Cross		1	80.00	5.00	0.20	80.00		
	Gopal House Road		1	50.00	4.00	0.20	40.00		
							249.60	148.76	37130.50
4	KSRB 4-1.2: Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.2 of PW,P&IWTD S.R 2016-17)								
	Bed Concrete	Cum							
	Cross Road to 4th Cross		1	80.00	5.00	0.15	60.00		
	Gopal House Road		1	50.00	4.00	0.15	30.00		
	CC road		1	170.00	3.30	0.15	84.15		
			1	34.00	3.30	0.15	16.83		
							190.98	5348.76	1021506.18

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
5	Cement concrete pavement.Construction of un-reinforced plain cement concrete pavement, thickness as per design, over a prepared sub base with OPC cement or any other type as per clause 1051.2.2 design mix M20/M30 , with 25mm and down size graded granite metal coarse aggregates and fine aggregtes , with superplastisiser @3lts confirming to IS9103-1999 Reaffirmed-2008 , mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the form work as per drawing). Spreading the concrete with shovels, rackers compacted using needle, screed and plate vibrator and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints including groove cutting charges, joint filler, separation membrane, selant primer, joint sealant, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications. - M30 (at 360Kg per cum coarse aggregate @ 0.69cum and fine aggregate @ 0.46cum) ((P.No.177, I.No.22.6.1 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Cross Road to 4th Cross		1	80.00	5.00	0.10	40.00		
	Gopal House Road		1	50.00	4.00	0.10	20.00		
	CC road		1	170.00	3.30	0.10	56.10		
							116.10	6217.96	**721905.16**
6	Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift.(P.No.177, I.No.22.7 of PW, P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Cross Road to 4th Cross		1	80.00	5.00	--	400.00		
	Gopal House Road		1	50.00	4.00	--	200.00		
	CC road		1	170.00	3.30	--	561.00		
							1161.00	95.40	**110759.40**
7	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Agrahara								
	4th Cross		1	135.00	4.80	0.23	149.04		
							149.04	1768.08	**263514.64**
8	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg\sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	4th Cross		1	135.00	4.80	--	648.00		
							648.00	29.68	**19232.64**
9	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	4th Cross		1	135.00	4.80	--	648.00		
							648.00	12.72	**8242.56**

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
10	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	4th Cross		1	135.00	4.80	0.04	25.92		
							25.92	8013.60	207712.51
11	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	Edge line line	Sqm	2	135.00	0.10	--	27.00		
							27.00	542.72	14653.44
							Total Construction Cost		2442923.275
12	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	292.38	27.00	7894.00
	Waste = 25.92 X 141 X 8 / 100 = 292.38								
13					Cost towards Preparation of DPR LS				24430.00
14					Cost towards PMC / Third Party inspection LS				24430.00
								Sub Total	2499677.27
15					Miscellaneous and rounding off				322.73
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

ADMINISTRATIVE APPROVAL

Accorded For Rs.....

Head of A/c.....

Div. Ref. No.....Date.....

EE(RTD)

Technical Sanction
Accorded For Rs.25 lakhs only
Head of A/C..P.30859.....
CER NO :...88..... Dt.22.07.17

TA CE (YNK)

2. Improvements to Roads and Drains in Agrahara Layout and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

KEY MAP –02. AGRAHARA LAYOUT

ಸಹಾಯಕ ಅಧಿಯರೆಕ್ಟರರು
ಬಿ.ಡಿ.ಎಂ.ಪಿ ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಜಂಟಿ ಯೋಜನಾ ಆಧಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-24

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains in Agrahara Layout and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

Est Cost: =75.0Lakh

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Agrahara	Cum							
	Agrahara Layout main road		2	465.00	0.45	0.35	146.48		
	Pooja Mahalakshmi Layout Main Road		2	200.00	0.45	0.35	63.00		
	Cross Road		2	300.00	0.45	0.35	94.50		
	New Drain								
	Agrahara Layout main road		2	250.00	0.50	0.50	125.00		
	1st Cross		2	135.00	0.50	0.50	67.50		
	3rd Cross		2	180.00	0.50	0.50	90.00		
							586.48	186.92	109623.91
2	Providing granite Slabs of Selected quality roughly dressed and fixed in cement mortor (1:6) including fixing curing etc,. Complete. 7.5cms thick (P.No.25, I.No.5.31.1 of PW, P&IWTD SR 2016-17)								
	For BS Slab Drain	Sqm							
	Agrahara Layout main road		2	250.00	1.35	--	675.00		
	1st Cross		2	135.00	1.35	--	364.50		
	3rd Cross		2	180.00	1.35	--	486.00		
							1525.50	665.68	1015494.84
3	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Agrahara Layout main road		2	635.00	1.50	0.25	476.25		
			1	80.00	6.50	0.20	104.00		
	Pooja Mahalakshmi Layout Main Road		2	200.00	1.50	0.20	120.00		
	Ayyappa Enclave								
	1st Cross		1	135.00	4.90	0.20	132.30		
	3rd Cross		1	180.00	5.00	0.20	180.00		
	Cross Road		2	300.00	1.00	0.20	120.00		
	Bad Reaches		6	1.50	1.80	0.20	3.24		
			8	0.80	1.00	0.20	1.28		
							1137.07	148.76	169150.53
4	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Agrahara								
	Agrahara Layout main road		2	635.00	1.50	0.25	476.25		
			1	80.00	6.50	0.23	119.60		
	Pooja Mahalakshmi Layout Main Road		2	200.00	1.50	0.23	138.00		

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
	1st Cross		1	135.00	4.90	0.23	152.15		
	3rd Cross		1	180.00	5.00	0.23	207.00		
	Cross Road		1	300.00	1.00	0.23	69.00		
	Bad Reaches		6	1.50	1.80	0.23	3.73		
			8	0.80	1.00	0.23	1.47		
							1167.19	1768.08	**2063690.60**
5	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg\sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Agrahara Layout main road		2	635.00	1.50	--	1905.00		
			1	80.00	6.50	--	520.00		
	Pooja Mahalakshmi Layout Main Road		2	200.00	1.50	--	600.00		
	1st Cross		1	135.00	4.90	--	661.50		
	3rd Cross		1	180.00	5.00	--	900.00		
	Cross Road		1	300.00	1.00	--	300.00		
	Bad Reaches		6	1.50	1.80	--	16.20		
			8	0.80	1.00	--	6.40		
							4909.10	29.68	**145702.09**
6	KSRRB 500-2: Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatement including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH Spec, Chapter 5 (P.No.161, I.No.21.2 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Agrahara Layout main road		1	635.00	5.50	--	3492.50		
			1	80.00	6.50	--	520.00		
	Pooja Mahalakshmi Layout Main Road		1	200.00	5.00	--	1000.00		
	1st Cross		1	135.00	4.90	--	661.50		
	3rd Cross		1	180.00	5.00	--	900.00		
	Cross Road		1	300.00	5.00	--	1500.00		
							8074.00		
	Deduct prime coat						-4909.10		
							3164.90	3.18	**10064.38**
7	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying DBM	Sqm							
	Agrahara Layout main road		2	635.00	1.50	--	1905.00		
			1	80.00	6.50	--	520.00		
	For Laying BC								
	Agrahara Layout main road		1	635.00	5.50	--	3492.50		
			1	80.00	6.50	--	520.00		
	Pooja Mahalakshmi Layout Main Road		1	200.00	5.00	--	1000.00		
	1st Cross		1	135.00	4.90	--	661.50		
	3rd Cross		1	180.00	5.00	--	900.00		
	Bad Reaches		1	300.00	5.00	--	1500.00		
							10499.00	12.72	**133547.28**

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
8	KSRRB M500-16. Providing and laying dense bituminous macadam 50-75mm compacted thickness with 4.5% VG-30 Bitumen using 40/60 TPH capacity H.M.P, using crushed aggregates of grading II, premixed with VG 30 grade bituminous binder and transporting the hot mix to work site, laying with mechanical paver to the required grade level and alignment rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH table 500-10, complete in all respects complete as per specification MORTH specification No. 507 (P.No.162 I.No. 21.17.6 of PW,P&IWTD S.R 2016-17)								
	For Laying DBM	Cum							
	Agrahara Layout main road		2	635.00	1.50	0.05	95.25		
			1	80.00	6.50	0.05	26.00		
							121.25	7036.28	853148.95
9	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Agrahara Layout main road		1	635.00	5.50	0.04	139.70		
			1	80.00	6.50	0.04	20.80		
	Pooja Mahalakshmi Layout Main Road		1	200.00	5.00	0.04	40.00		
	1st Cross		1	185.00	4.00	0.04	29.60		
	3rd Cross		1	180.00	5.00	0.04	36.00		
	Bad Reaches		1	300.00	5.00	0.04	60.00		
							322.96	8013.60	2588072.26
10	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	Edge line	Sqm	2	1530.00	0.10	--	306.00		
							306.00	542.72	166072.32
							Total Construction Cost		7254567.160
11	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	3642.99	27.00	98361.00
	Waste = 322.96 X 141 X 8 / 100 =3642.99								
12							Cost towards Preparation of DPR LS		72546.00
13							Cost towards PMC / Third Party Inspection LS		72546.00
								Sub Total	7498020.16
14							Miscellaneous and rounding off		1979.84
								Total	7500000.00

ADMINISTRATIVE APPROVAL
Accorded For Rs.....
Head of A/c.....
Ref No.....
Date.....
AE (EBTR)

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

Tejus Consultants

Technical Sanction
Accorded For Rs. 7.50 lakh only
Head of A/C..P...3089....
CER NO :.....89..... Dt:..22.07.17

3 of 3

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CE (YNK)

3.Improvements to Roads, and Drains at Kogilu Village and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

KEY MAP –03. KOGILU VILLAGE

ಸಹಾಯಕ ಅಧಿಯಂತರರು

ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಬಾಣಸವಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯ ಪಾಲಕ ಅಭಿಯಂತರರು

ಬಾಣಸವಾಯನಪುರ ಉಪ ವಿಭಾಗ

KEY MAP –03. KOGILU VILLAGE

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯ ಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads, and Drains at Kogilu Village and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
1	Removing and refixing stone slabs of drains and pointing in CM (1:3) (P.No.25, I.No.5.33 of PW, P&IWTD SR 2016-17)								
	Kogilu Village	Sqm							
	Gowdru Ramanna Badavane Road		1	150.00	1.35		202.50		
	Damaged Drain Portion		2	75.00	1.35		202.50		
							405.00	80.56	**32626.80**
2	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Desilt	Cum							
	Kogilu Village								
	11th Cross		1	45.00	0.45	0.30	6.08		
	Gowdru Ramanna Badavane Road		1	150.00	0.45	0.30	20.25		
	S R Residency Main Road		2	100.00	0.45	0.30	27.00		
	Cross Road		2	50.00	0.45	0.30	13.50		
							66.83	186.92	**12490.93**
3	KSRRB M300- Scarifying Existing Granular Surface to a Depth of 50mm by Manual Means. KSRRB M300-52.1. Scarifying the existing granular road surface to a depth of 50mm and disposal of scarified material and complete as per specifications. MORTH Specification No. 305.4.3 (P.No.148, I.No.19.58 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Sqm							
	S R Residency Main Road		1	100.00	5.00		500.00		
	Cross Road		1	50.00	5.00		250.00		
							750.00	41.2	**30900.00**
4	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Kogilu Village								
	11th Cross		1	45.00	5.00	0.20	45.00		
	11th A Cross		1	15.00	3.60	0.20	10.80		
	Cross Road 2		1	50.00	4.00	0.20	40.00		
	Bairappa House Road		1	60.00	4.60	0.20	55.20		
							151.00	148.76	**22462.76**
5	KSRB 4-1.2: Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.2 of PW,P&IWTD S.R 2016-17)								
	Bed Concrete	Cum							
	Kogilu Village								
	11th Cross		1	45.00	5.00	0.15	33.75		
	11th A Cross		1	15.00	3.60	0.15	8.10		
	Cross Road 2		1	50.00	4.00	0.15	30.00		
	Bairappa House Road		1	60.00	4.60	0.15	41.40		
							113.25	5348.76	**605747.07**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
6	Cement concrete pavement.Construction of un-reinforced plain cement concrete pavement, thickness as per design, over a prepared sub base with OPC cement or any other type as per clause 1051.2.2 design mix M20/M30 , with 25mm and down size graded granite metal coarse aggregates and fine aggregtes , with superplastisiser @3lts confirming to IS9103-1999 Reaffirmed-2008 , mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the form work as per drawing). Spreading the concrete with shovels, rackers compacted using needle, screed and plate vibrator and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints including groove cutting charges, joint filler, separation membrane, selant primer, joint sealant, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications. - M30 (at 360Kg per cum coarse aggregate @ 0.69cum and fine aggregate @ 0.46cum) ((P.No.177, I.No.22.6.1 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	11th Cross		1.00	45.00	5.00	0.10	22.50		
	11th A Cross		1.00	15.00	3.60	0.10	5.40		
	Cross Road 2		1.00	50.00	4.00	0.10	20.00		
	Bairappa House Road		1.00	60.00	4.60	0.10	27.60		
							75.50	6217.96	469455.98
7	Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift.(P.No.177, I.No.22.7 of PW, P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	11th Cross		1.00	45.00	5.00	--	225.00		
	11th A Cross		1.00	15.00	3.60	--	54.00		
	Cross Road 2		1.00	50.00	4.00	--	200.00		
	Bairappa House Road		1.00	60.00	4.60	--	276.00		
							755.00	95.40	72027.00
8	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub-base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Kogilu Village								
	Gowdru Ramanna Badavane Road		1	150.00	5.00	0.23	172.50		
	S R Residency Main Road		1	100.00	5.00	0.23	115.00		
	Cross Road		1	50.00	5.00	0.23	57.50		
							345.00	1768.08	609987.60
9	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Kogilu Village								
	Gowdru Ramanna Badavane Road		1	150.00	5.00	--	750.00		
	S R Residency Main Road		1	100.00	5.00	--	500.00		
	Cross Road		1	50.00	5.00	--	250.00		
							1500.00	29.68	44520.00
10	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Kogilu Village								
	Gowdru Ramanna Badavane Road		1	150.00	5.00	--	750.00		
	S R Residency Main Road		1	100.00	5.00	--	500.00		
	Cross Road		1	50.00	5.00	--	250.00		
							1500.00	12.72	19080.00

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
11	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S R 2016-17)								
	For Laying BC	Cum							
	Kogilu Village								
	Gowdru Ramanna Badavane Road		1	150.00	5.00	0.04	30.00		
	S R Residency Main Road		1	100.00	5.00	0.04	20.00		
	Cross Road		1	50.00	5.00	0.04	10.00		
							60.00	8013.60	480816.00
12	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803 (P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	Edge Line	Sqm	2.0	300.00	0.10	--	60.00		
							60.00	542.72	32563.20
							Total Construction Cost		2432677.340
13	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	676.80	27.00	18274.00
	Waste = 60.00X 141 X 8 / 100 =676.80								
14						Cost towards Preparation of DPR LS			24327.00
15						Cost towards PMC / Third Party Inspection LS			24327.00
								Sub Total	2499605.34
16							Miscellaneous and rounding off		394.66
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

Technical Sanction
Accorded For ..Rs. 25.00 lakh only
Head of A/C..P-3089.....
CER NO :.....87..... Dt:.. 22.07.17

TA 1 CE (YNK)

4. Improvements to Roads, and Drains at Bellehalli and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

KEY MAP –04. BELLAHALLI

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads, and Drains at Bellehalli and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neatly dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Desilt	Cum							
	Bellehalli								
	Lake road		2	285.00	0.45	0.35	89.78		
	New Drain								
	Cross Road 1		1	60.00	0.50	0.50	15.00		
	Cross Road 2		1	60.00	0.50	0.50	15.00		
	Cross Road 3		1	50.00	0.50	0.50	12.50		
	Cross Road 4		1	65.00	0.50	0.50	16.25		
							148.53	186.92	**27762.29**
2	Providing granite Slabs of Selected quality roughly dressed and fixed in cement mortor (1:6) including fixing curing etc,. Complete. 7.5cms thick (P.No.25, I.No.5.31.1 of PW, P&IWTD SR 2016-17)								
	For New BS Slab Drain	Sqm							
	Cross Road 1		1	60.00	1.35	--	81.00		
	Cross Road 2		1	60.00	1.35	--	81.00		
	Cross Road 3		1	50.00	1.35	--	67.50		
	Cross Road 4		1	65.00	1.35	--	87.75		
							317.25	665.68	**211186.98**
3	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Bellehalli								
	Lake road		1	285.00	5.20	0.20	296.40		
							296.40	148.76	**44092.46**
4	KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305(P.No.142, I.No.19.60 of PW, P&IWTD SR 2016-17)								
	Bellehalli	Cum							
	Cross Road 1		1	60.00	5.00	0.20	60.00		
	Cross Road 2		1	60.00	4.50	0.20	54.00		
	Cross Road 3		1	50.00	4.50	0.23	51.75		
	Cross Road 4		1	65.00	5.00	0.23	74.75		
							240.50	320.12	**76988.86**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
5	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Bellehalli								
	Lake road		1	285.00	5.20	0.23	340.86		
	Cross Road 1		1	60.00	5.00	0.23	69.00		
	Cross Road 2		1	60.00	4.50	0.23	62.10		
	Cross Road 3		1	50.00	4.50	0.23	51.75		
	Cross Road 4		1	65.00	5.00	0.23	74.75		
							598.46	1768.08	**1058125.16**
6	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Bellehalli								
	Lake road		1	285.00	5.20	--	1482.00		
	Cross Road 1		1	60.00	5.00	--	300.00		
	Cross Road 2		1	60.00	4.50	--	270.00		
	Cross Road 3		1	50.00	4.50	--	225.00		
	Cross Road 4		1	65.00	5.00	--	325.00		
							2602.00	29.68	**77227.36**
7	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Bellehalli								
	Lake road		1	285.00	5.20	--	1482.00		
	Cross Road 1		1	60.00	5.00	--	300.00		
	Cross Road 2		1	60.00	4.50	--	270.00		
	Cross Road 3		1	50.00	4.50	--	225.00		
	Cross Road 4		1	65.00	5.00	--	325.00		
							2602.00	12.72	**33097.44**
8	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Bellehalli								
	Lake road		1	285.00	5.20	0.04	59.28		
	Cross Road 1		1	60.00	5.00	0.04	12.00		
	Cross Road 2		1	60.00	4.50	0.04	10.80		
	Cross Road 3		1	50.00	4.50	0.04	9.00		
	Cross Road 4		1	65.00	5.00	0.04	13.00		
							104.08	8013.60	**834055.49**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
9	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	edge line	Sqm	2	520.00	0.10	--	104.00		
							104.00	542.72	56442.88
							Total Construction Cost		2418978.920
10	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	1174.02	27.00	31699.00
	Waste = 104.08 X 141 X 8 / 100 = 1174.02								
11							Cost towards Preparation of DPR LS		24190.00
12							Cost towards PMC / Third Party inspection LS		24190.00
								Sub Total	2499057.92
13							Miscellaneous and rounding off		942.08
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

Technical Sanction
Accorded For Rs. 25.00 lakh only
Head of A/C..P-3P.89...
CER NO :.....9P..... Dt:..22.07.17

TA - CE (YNK)

5.Improvements to Roads and Drains in Kattigenahalli, Srinidhi Layout, Anjanadri Layout, Kuvempu Layoutand surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

KEY MAP –05. KATTIGENAHALLI

KEY MAP –05. KATTIGENAHALLI

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains in Kattigenahalli, Srinidhi Layout, Anjanadri Layout, Kuvempu Layoutand surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

Est Cost: =75.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Agrahara	Cum							
	Kattigenahalli								
	3rd Main Road		1	40.00	0.45	0.25	4.50		
	6th Cross		2	45.00	0.45	0.25	10.13		
	7th Cross		1	50.00	0.45	0.25	5.63		
	kalidas Layout								
	1st Cross		2	220.00	0.45	0.25	49.50		
	Muni Anjinappa Layout								
	1st Cross		2	75.00	0.45	0.30	20.25		
	2nd Cross		1	75.00	0.45	0.30	10.13		
	Cross Road		1	100.00	0.45	0.30	13.50		
	Kids Day Care Road		2	320.00	0.45	0.30	86.40		
	Gangothri Layout								
	Main Road		2	155.00	0.45	0.30	41.85		
	Cross Road 1		2	50.00	0.45	0.30	13.50		
	Cross Road 2		2	35.00	0.45	0.30	9.45		
							264.83	186.92	**49501.09**
2	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Reva College Opp Road		1	295.00	7.00	0.23	474.95		
	Kattigenahalli								
	3rd Main Road		1	40.00	4.50	0.23	41.40		
	5th Cross		1	165.00	5.50	0.23	208.73		
	6th Cross		1	45.00	5.00	0.23	51.75		
	7th Cross		1	50.00	5.00	0.23	57.50		
	kalidas Layout								
	6th Cross		1	220.00	7.00	0.23	354.20		
	Manjunatha Layout								
	1st Cross		1	75.00	5.00	0.23	86.25		
	2nd Cross		1	75.00	5.00	0.23	86.25		
	Cross Road		1	100.00	4.00	0.23	92.00		
	Kids Day Care Road		1	320.00	5.00	0.23	368.00		
	Gangothri Layout								
	Main Road		1	155.00	5.00	0.23	178.25		
	Cross Road 1		1	50.00	5.00	0.23	57.50		
	Cross Road 2		1	35.00	5.00	0.23	40.25		
							2097.03	1768.08	**3707707.96**
3	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kglsqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
	Road Portion	Sqm							
	Reva College Opp Road		1	295.00	7.00	--	2065.00		
	Kattigenahalli								
	3rd Main Road		1	40.00	4.50	--	180.00		
	5th Cross		1	165.00	5.50	--	907.50		
	6th Cross		1	45.00	5.00	--	225.00		
	7th Cross		1	50.00	5.00	--	250.00		
	kalidas Layout								
	6th Cross		1	220.00	7.00	--	1540.00		
	Manjunatha Layout								
	1st Cross		1	75.00	5.00	--	375.00		
	2nd Cross		1	75.00	5.00	--	375.00		
	Cross Road		1	100.00	4.00	--	400.00		
	Kids Day Care Road		1	320.00	5.00	--	1600.00		
	Gangothri Layout								
	Main Road		1	155.00	5.00	--	775.00		
	Cross Road 1		1	50.00	5.00	--	250.00		
	Cross Road 2		1	35.00	5.00	--	175.00		
							9117.50	29.68	**270607.40**
4	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Reva College Opp Road		1	295.00	7.00	--	2065.00		
	Kattigenahalli								
	3rd Main Road		1	40.00	4.50	--	180.00		
	5th Cross		1	165.00	5.50	--	907.50		
	6th Cross		1	45.00	5.00	--	225.00		
	7th Cross		1	50.00	5.00	--	250.00		
	kalidas Layout								
	6th Cross		1	220.00	7.00	--	1540.00		
	Manjunatha Layout								
	1st Cross		1	75.00	5.00	--	375.00		
	2nd Cross		1	75.00	5.00	--	375.00		
	Cross Road		1	100.00	4.00	--	400.00		
	Kids Day Care Road		1	320.00	5.00	--	1600.00		
	Gangothri Layout								
	Main Road		1	155.00	5.00	--	775.00		
	Cross Road 1		1	50.00	5.00	--	250.00		
	Cross Road 2		1	35.00	5.00	--	175.00		
							9117.50	12.72	**115974.60**
5	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Reva College Opp Road		1	295.00	7.00	0.04	82.60		
	Kattigenahalli								
	3rd Main Road		1	40.00	4.50	0.04	7.20		
	5th Cross		1	165.00	5.50	0.04	36.30		
	6th Cross		1	45.00	5.00	0.04	9.00		

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
	7th Cross		1	50.00	5.00	0.04	10.00		
	kalidas Layout								
	6th Cross		1	220.00	7.00	0.04	61.60		
	Manjunatha Layout								
	1st Cross		1	75.00	5.00	0.04	15.00		
	2nd Cross		1	75.00	5.00	0.04	15.00		
	Cross Road		1	100.00	4.00	0.04	16.00		
	Kids Day Care Road		1	320.00	5.00	0.04	64.00		
	Gangothri Layout								
	Main Road		1	155.00	5.00	0.04	31.00		
	Cross Road 1		1	50.00	5.00	0.04	10.00		
	Cross Road 2		1	35.00	5.00	0.04	7.00		
							364.70	8013.60	2922559.92
6	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	edge line	Sqm	2	1625.00	0.10	–	325.00		
							325.00	542.72	176384.00
							Total Construction Cost		7242734.970
7	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		–	–	–	–	4113.82	27.00	111073.00
	Waste = 364.70 X 141 X 8 / 100 = 4113.82								
8					Cost towards Preparation of DPR LS				72428.00
9					Cost towards PMC / Third Party inspection LS				72428.00
								Sub Total	7498663.97
10					Miscellaneous and rounding off				1336.03
								Total	7500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

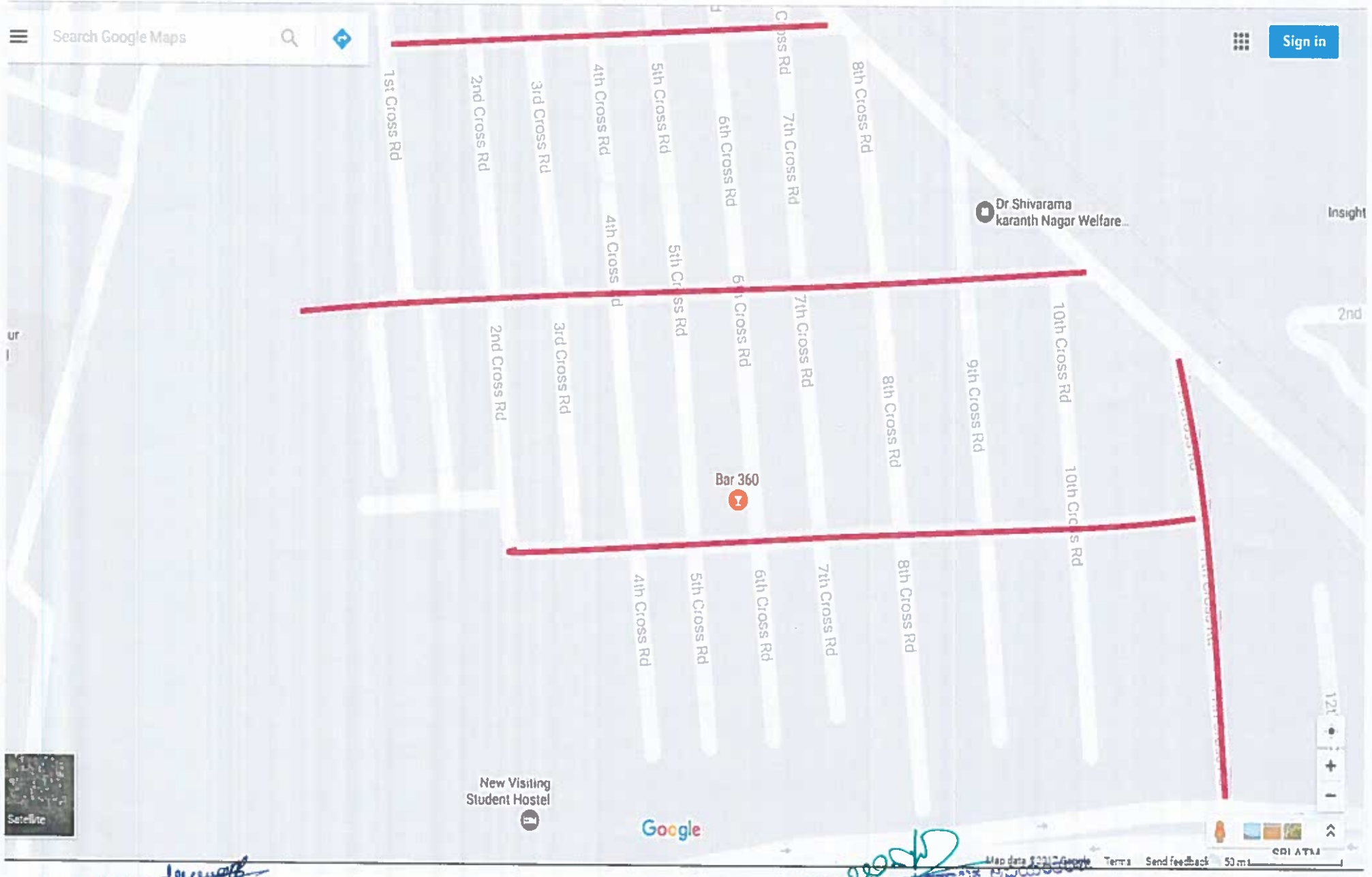
ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ವಿಭಾಗ ಪಶ್ಚಿಮ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ, ಬೆಂಗಳೂರು-560026

Technical Sanction
Accorded For Rs. 75.00 lakhs only
Head of A/C P-3089
CER NO : 92 **Dt:** 22.07.17

CE (YNK)

6. Improvements to Roads, and Drains Telecom layout, Shivaramkaranth nagar(MCHS 2nd Phase), Win Field Garden and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

KEY MAP – 06. MCECHS SHIVARAM KARANTH NAGAR 2ND PAHSE



ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯ ಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

KEY MAP – 06. MCECHS LAYOUT WINN FIELD GARDEN

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ. ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯ ಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

KEY MAP – 06. MCECHS LAYOUT WINN FIELD GARDEN

ಪ್ರಧಾನ ಭೂಮಾಪಕರು
ಬೆಂಗಳೂರು ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-24

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads, and Drains Telecom layout, Shivaramkaranth nagar(MCHS 2nd Phase), Win Field Garden and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

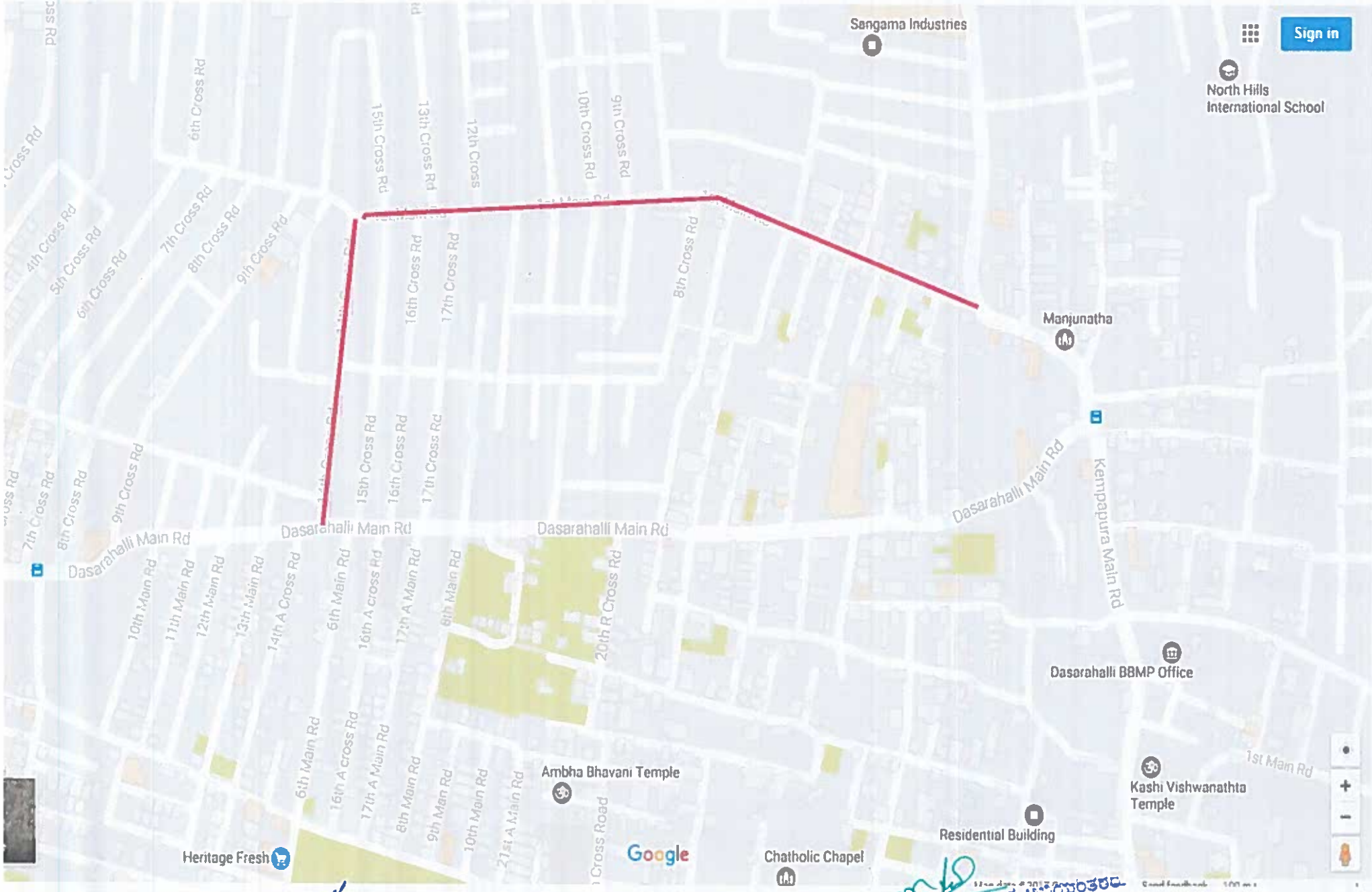
Est Cost: =75.0Lakh

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Desilt	Cum							
	Shivaram Karanth Nagar								
	11th Cross		2	205.00	0.45	0.20	36.90		
	1st Main		2	370.00	0.45	0.20	66.60		
	2nd Main		2	380.00	0.45	0.20	68.40		
	3rd Main		2	245.00	0.45	0.20	44.10		
	Win Field Garden								
	7th Cross		2	180.00	0.45	0.20	32.40		
	8th Cross		2	140.00	0.45	0.20	25.20		
	9th Cross		2	135.00	0.45	0.20	24.30		
	10th Cross		2	135.00	0.45	0.20	24.30		
	2nd Main		2	240.00	0.45	0.20	43.20		
	1st Cross		2	200.00	0.45	0.20	36.00		
	2nd Cross		2	200.00	0.45	0.20	36.00		
	3rd Cross		2	200.00	0.45	0.20	36.00		
							473.40	186.92	**88487.93**
2	KSRRB M300-52.2. Scarifying Existing Bituminous surface to a depth of 50mm by Mechanical Means. Scarifying the existing bituminous road surface to a depth of 50mm and disposal of scarified material and complete as per specifications. MORTH Specification No. 305.4.3 (P.No.148, I.No.19.59 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Win Field Garden								
	7th Cross		1	180.00	5.00		900.00		
	8th Cross		1	140.00	5.00		700.00		
	9th Cross		1	135.00	5.00		675.00		
	10th Cross		1	135.00	5.00		675.00		
	1st Cross		1	200.00	5.00		1000.00		
							3950.00	7.71	**30454.50**
3	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Bad Reaches								
			5	2.00	2.50	0.25	6.25		
			8	1.20	1.20	0.25	2.88		
			6	5.00	0.50	0.25	3.75		
			3	20.00	4.80	0.25	72.00		
	Win Field Garden								
	2nd Main		1	240.00	1.50	0.25	90.00		
	2nd Cross		1	200.00	1.50	0.25	75.00		
							249.88	148.76	**37172.15**
4	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub-base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Bad Reaches								
			5	2.00	2.50	0.23	5.75		

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
			8	1.20	1.20	0.23	2.65		
			6	5.00	0.50	0.23	3.45		
			3	20.00	4.80	0.23	66.24		
	Win Field Garden								
	7th Cross		1	180.00	5.00	0.23	207.00		
	8th Cross		1	140.00	5.00	0.23	161.00		
	9th Cross		1	135.00	5.00	0.23	155.25		
	10th Cross		1	135.00	5.00	0.23	155.25		
	2nd Main		1	240.00	1.50	0.23	82.80		
	1st Cross		1	200.00	5.00	0.23	230.00		
	2nd Cross		1	200.00	1.50	0.23	69.00		
							1138.39	1768.08	**2012763.88**
5	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg\sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Bad Reaches								
			5	2.00	2.50	--	25.00		
			8	1.20	1.20	--	11.52		
			6	5.00	0.50	--	15.00		
			3	20.00	4.80	--	288.00		
	Win Field Garden								
	7th Cross		1	180.00	5.00	--	900.00		
	8th Cross		1	140.00	5.00	--	700.00		
	9th Cross		1	135.00	5.00	--	675.00		
	10th Cross		1	135.00	5.00	--	675.00		
	2nd Main		1	240.00	1.50	--	360.00		
	1st Cross		1	200.00	5.00	--	1000.00		
	2nd Cross		1	200.00	1.50	--	300.00		
							4949.52	29.68	**146901.75**
6	KSRRB 500-2: Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatement including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH Spec, Chapter 5 (P.No.161, I.No.21.2 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Shivaram Karanth Nagar								
	11th Cross		1	205.00	5.50	--	1127.50		
	1st Main		1	370.00	5.50	--	2035.00		
	2nd Main		1	380.00	5.50	--	2090.00		
	3rd Main		1	245.00	5.00	--	1225.00		
	Win Field Garden								
	7th Cross		1	180.00	5.00	--	900.00		
	8th Cross		1	140.00	5.00	--	700.00		
	9th Cross		1	135.00	5.00	--	675.00		
	10th Cross		1	135.00	5.00	--	675.00		
	2nd Main		1	240.00	5.20	--	1248.00		
	1st Cross		1	200.00	5.00	--	1000.00		
	2nd Cross		1	200.00	5.00	--	1000.00		
	3rd Cross		1	200.00	5.00	--	1000.00		
							13675.50		
	Deduct prime coat						-4949.52		
							8725.98	3.18	**27748.62**
7	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Shivaram Karanth Nagar								
	11th Cross		1	205.00	5.50	--	1127.50		
	1st Main		1	370.00	5.50	--	2035.00		
	2nd Main		1	380.00	5.50	--	2090.00		
	3rd Main		1	245.00	5.00	--	1225.00		
	Win Field Garden								

7. Improvements to Roads, and Drains at Prakruthi Layout, Balaji Layout(Kogilu), Pooja Mahalakshmi Layout and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

KEY MAP –07. BHUVANESWARINAGARA 14TH CROSS TO KEMPEGOWDA CIRCLE



ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

KEY MAP –07. BALAJI LAYOUT

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

KEY MAP –07. BALAJI LAYOUT

ಸಹಾಯಕ ಅಭಿಯಂತರರು

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads, and Drains at Prakruthi Layout, Balaji Layout(Kogilu), Pooja Mahalakshmi Layout and surrounding areas in ward No 05 Jakkur, Byatarayanapura Sub Division.

Est Cost: =75.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Desilt	Cum							
	Prakruthi Layout								
	5th Cross		2	105.00	0.45	0.30	28.35		
	6th Cross		2	400.00	0.45	0.30	108.00		
	Cros Road in 6th Cross		2	100.00	0.45	0.30	27.00		
	6th A Cross		2	130.00	0.45	0.30	35.10		
	7th Cross		2	250.00	0.45	0.30	67.50		
	8th Cross		2	280.00	0.45	0.25	63.00		
	Balaji layout 2nd main road		2	210.00	0.45	0.25	47.25		
	Krishna Nagar								
	Krishna Nagar Main Road		2	250.00	0.45	0.25	56.25		
	Culverts		2	6.00	2.00	1.05	25.20		
							457.65	186.92	85543.94
2	KSRB 4-1.2: Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.2 of PW,P&IWTD S.R 2016-17)								
	Bed Concrete	Cum							
	Culverts		2	6.00	2.00	0.15	3.60		
							3.60	5348.76	19255.54
3	KSRB 5.2-3: Providing and constructing granite size stone masonry in foundation cement mortor 1:6, stone hammered dressed in courses not less than 20cms high, bond stones at 2m. apart in each course including cost of materaials, labour, curing complete as per specifications. Specifcation No. KBS 5.1.13. (P.No.23, I.No.5.6 of PW, P&IWTD S.R 2016-17)								
	SSM Wall	Cum							
	Culverts		4.00	6.00	0.60	1.50	21.60		
							21.60	4438.22	95865.55
4	KSRB 15.1.1 Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar 1:3, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications. (P.No.113, I.No.15.1 of PW, P&IWTD S.R 2016-17)								
	SSM Wall	Sqm							
	Culverts		4.00	6.00	–	1.50	36.00		
							36.00	102.82	3701.52
5	KSRB 4-1.6: Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.878 cum and fine aggregates @ 0.459 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation and plinth, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.6 of PW,P&IWTD S.R 2016-17)								
	Coping	Cum							
	Culverts		4	6.00	0.600	0.100	1.44		

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
							1.44	5767.46	8305.14
6	Providing and fixing RCC Precast cover slab of 250mm thick for drain in cement concrete M20 using graded granite jelly 20mm and down size with steel reinforcement, including form work, lift charges, curing and concrete finished surfaces on both sides etc, complete and as per drawing and the directions of Engineer in-charge. (Data Rate)								
	Cover Slab	Sqm							
	Culverts		2	6.00	1.80	--	21.60		
							21.60	5317.00	114847.20
7	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Prakruthi Layout								
	5th Cross		1	105.00	5.50	0.20	115.50		
	6th Cross		1	400.00	5.50	0.20	440.00		
	Cros Road in 6th Cross		1	100.00	5.00	0.20	100.00		
	6th A Cross		1	130.00	5.50	0.20	143.00		
	7th Cross		1	250.00	5.50	0.20	275.00		
	8th Cross		2	280.00	1.50	0.25	210.00		
	Balaji layout 2nd main road		1	210.00	5.00	0.20	210.00		
	Krishna Nagar								
	Krishna Nagar Main Road		2	250.00	0.80	0.25	100.00		
							1593.50	148.76	237049.06
8	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Prakruthi Layout								
	5th Cross		1	105.00	5.50	0.23	132.83		
	6th Cross		1	400.00	5.50	0.23	506.00		
	Cros Road in 6th Cross		1	100.00	5.00	0.23	115.00		
	6th A Cross		1	130.00	5.50	0.23	164.45		
	7th Cross		1	250.00	5.50	0.23	316.25		
	8th Cross		2	280.00	1.50	0.23	193.20		
	Balaji layout 2nd main road		1	210.00	5.00	0.23	241.50		
	Krishna Nagar								
	Krishna Nagar Main Road		2	250.00	0.80	0.23	92.00		
							1761.23	1768.08	3113986.70
9	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Prakruthi Layout								
	5th Cross		1	105.00	5.50	--	577.50		
	6th Cross		1	400.00	5.50	--	2200.00		
	Cros Road in 6th Cross		1	100.00	5.00	--	500.00		
	6th A Cross		1	130.00	5.50	--	715.00		
	7th Cross		1	250.00	5.50	--	1375.00		
	8th Cross		1	280.00	1.50	--	420.00		
	Balaji layout 2nd main road		1	210.00	5.00	--	1050.00		
	Krishna Nagar								

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
	Krishna Nagar Main Road		1	250.00	0.80	--	200.00		
							7037.50	29.68	**208873.00**
6	KSRRB 500-2: Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatement including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH Spec, Chapter 5 (P.No.161, I.No.21.2 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Prakruthi Layout								
	8th Cross		1	280.00	6.00	--	1680.00		
	Krishna Nagar								
	Krishna Nagar Main Road		1	250.00	5.50	--	1375.00		
							3055.00		
	Deduct prime coat						-620.00		
							2435.00	3.18	**7743.30**
10	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Prakruthi Layout								
	5th Cross		1	105.00	5.50	--	577.50		
	6th Cross		1	400.00	5.50	--	2200.00		
	Cros Road in 6th Cross		1	100.00	5.00	--	500.00		
	6th A Cross		1	130.00	5.50	--	715.00		
	7th Cross		1	250.00	5.50	--	1375.00		
	8th Cross		1	280.00	6.00	--	1680.00		
	Balaji layout 2nd main road		1	210.00	5.00	--	1050.00		
	Krishna Nagar								
	Krishna Nagar Main Road		1	250.00	5.50	--	1375.00		
							9472.50	12.72	**120490.20**
11	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Prakruthi Layout								
	5th Cross		1	105.00	5.50	0.04	23.10		
	6th Cross		1	400.00	5.50	0.04	88.00		
	Cros Road in 6th Cross		1	100.00	5.00	0.04	20.00		
	6th A Cross		1	130.00	5.50	0.04	28.60		
	7th Cross		1	250.00	5.50	0.04	55.00		
	8th Cross		1	280.00	6.00	0.04	67.20		
	Balaji layout 2nd main road		1	210.00	5.00	0.04	42.00		
	Krishna Nagar								
	Krishna Nagar Main Road		1	250.00	5.50	0.04	55.00		
							378.90	8013.60	**3036353.04**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
12	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	Centre Line	Sqm	2	1725.00	0.10	–	345.00		
							345.00	542.72	187238.40
							Total Construction Cost		7239252.594
13	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	–	--	–	4273.99	27.00	115398.00
	Waste = 378.90X 141 X 8 / 100 = 4273.99								
14					Cost towards Preparation of DPR LS				72393.00
15					Cost towards PMC / Third Party inspection LS				72393.00
								Sub Total	7499436.59
16					Miscellaneous and rounding off				563.41
								Total	7500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

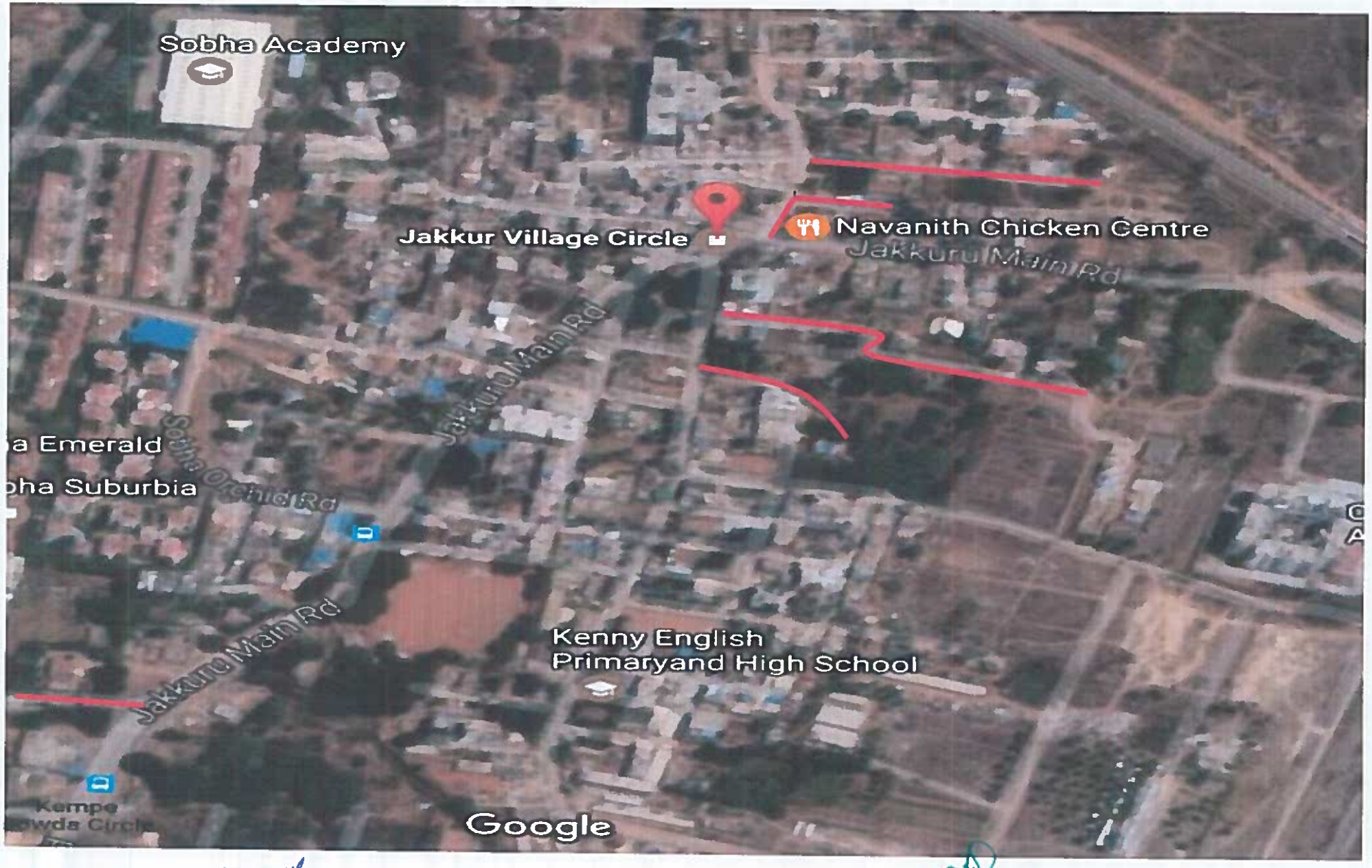
Executive Engineer

Technical Sanction
Accorded For Rs. 75.50 lakh only
Head of A/C P-3085
CER NO : 93 Dt: 22.07.17

TA CE (YNK)

8. Improvements to Roads and Drains at Jakkur Village and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

KEY MAP –08. JAKKURU VILLAGE



ಸಹಾಯಕ ಅಧಿಕ್ಷಕರು
ಬಿ.ಬಿ.ವಿ.ಪಿ ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-24

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains at Jakkur Village and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Agrahara	Cum							
	RO Plant Opp Road		2	100.00	0.45	0.35	31.50		
	New Drain								
	Muneshwara Temple opp road		1	46.00	0.60	0.50	13.80		
							45.30	186.92	**8467.48**
2	Providing granite Slabs of Selected quality roughly dressed and fixed in cement mortor (1:6) including fixing curing etc,. Complete. 7.5cms thick (P.No.25, I.No.5.31.1 of PW, P&IWTD SR 2016-17)								
	For BS Slab Drain	Sqm							
	Muneshwara Temple opp road		2	46.00	1.35	--	124.20		
							124.20	665.68	**82677.46**
3	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Muneshwara Temple opp road		1	46.00	4.30	0.25	49.45		
	Ravikumar House Road		1	125.00	3.80	0.25	118.75		
	RO Plant Opp Road		1	195.00	4.40	0.25	214.50		
	KVB Rangamandir Opp Road		1	75.00	1.00	0.25	18.75		
	Cross Road 1		1	55.00	3.50	0.25	48.13		
							449.58	148.76	**66878.78**
4	KSRB 4-1.2: Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.2 of PW,P&IWTD S.R 2016-17)								
	Bed Concrete	Cum							
	Muneshwara Temple opp road		1	46.00	4.30	0.15	29.67		
	Ravikumar House Road		1	125.00	3.80	0.15	71.25		
	KVB Rangamandir Opp Road		1	75.00	1.00	0.15	11.25		
	Cross Road 1		1	55.00	3.50	0.15	28.88		
							141.05	5348.76	**754415.85**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
5	Cement concrete pavement.Construction of un-reinforced plain cement concrete pavement, thickness as per design, over a prepared sub base with OPC cement or any other type as per clause 1051.2.2 design mix M20/M30 , with 25mm and down size graded granite metal coarse aggregates and fine aggregtes , with superplastisiser @3lts confirming to IS9103-1999 Reaffirmed-2008 , mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the form work as per drawing). Spreading the concrete with shovels, rackers compacted using needle, screed and plate vibrator and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints including groove cutting charges, joint filler, separation membrane, selant primer, joint sealant, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications. - M30 (at 360Kg per cum coarse aggregate @ 0.69cum and fine aggregate @ 0.46cum) ((P.No.177, I.No.22.6.1 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Muneshwara Temple opp road		1	46.00	4.30	0.10	19.78		
	Ravikumar House Road		1	125.00	3.80	0.10	47.50		
	KVB Rangamandir Opp Road		1	75.00	4.20	0.10	31.50		
	Cross Road 1		1	55.00	3.50	0.10	19.25		
							118.03	6217.96	**733905.82**
6	Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift.(P.No.177, I.No.22.7 of PW, P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Muneshwara Temple opp road		1	46.00	4.30	--	197.80		
	Ravikumar House Road		1	125.00	3.80	--	475.00		
	KVB Rangamandir Opp Road		1	75.00	4.20	--	315.00		
	Cross Road 1		1	55.00	3.50	--	192.50		
							1180.30	95.40	**112600.62**
7	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Agrahara								
	RO Plant Opp Road		1	195.00	4.40	0.23	197.34		
							197.34	1768.08	**348912.91**
8	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kglsqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	RO Plant Opp Road		1	195.00	4.40	--	858.00		
							858.00	29.68	**25465.44**
9	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	RO Plant Opp Road		1	195.00	4.40	--	858.00		
							858.00	12.72	**10913.76**

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
10	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	RO Plant Opp Road		1	195.00	4.40	0.04	34.32		
							34.32	8013.60	275026.75
11	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	edge line	Sqm	2.0	195.00	0.10	--	39.00		
							39.00	542.72	21166.08
							Total Construction Cost		2440430.950
12	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	387.13	27.00	10452.00
	Waste = 34.32 X 141 X 8 / 100 = 387.13								
13					Cost towards Preparation of DPR LS				24405.00
14					Cost towards PMC / Third Party inspection LS				24405.00
								Sub Total	2499692.95
15					Miscellaneous and rounding off				307.05
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

Technical Sanction
Accorded For Rs. 25.00 lakhs only
Head of A/C... P-3088...
CER NO :..... 94..... Dt:.. 22-07-17

[TA] CE (YNK)

9. Improvements to Roads and Drains at Kalipalya Village, Venkateshawara Nagar and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

KEY MAP –09. KALLIPALYA VILLAGE AND VENKATESHPURNAGARA (ROYAL ENCLAVE)

ಸಹಾಯಕ ಅಭಿಯಂತರರು

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains at Kalipalya Village, Venkateshawara Nagar and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Royal Enclave	Cum							
	Main Road		2	370.00	0.45	0.20	66.60		
	2nd Cross		2	45.00	0.45	0.20	8.10		
	4th Cross		2	110.00	0.45	0.20	19.80		
	3rd Main		2	35.00	0.45	0.20	6.30		
							100.80	186.92	**18841.54**
2	KSRRB M300-14. Excavation for roadwork in soil with hydraulic excavator of 0.90 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to embankment location and complete as per specifications. MORTH Specification No.301 (P.No.143, I.No.19.14 of PW,P&IWTD S.R 2016-17)								
	Road Portion	Cum							
	Royal Enclave								
	Bad Reaches								
			5	2.00	2.50	0.25	6.25		
			8	1.20	1.20	0.25	2.88		
	4th Cross		1	50.00	1.20	0.25	15.00		
							24.13	148.76	**3589.58**
3	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Royal Enclave								
	Main Road								
	Ch0-20		1	20.00	11.00	0.23	50.60		
	Ch20-80 LHS		1	60.00	5.50	0.23	75.90		
	Ch20-80 RHS		1	60.00	5.50	0.23	75.90		
	2nd Cross		1	45.00	5.00	0.23	51.75		
	3rd Main		1	35.00	4.50	0.23	36.23		
	Bad Reaches								
			5	2.00	2.50	0.23	5.75		
			8	1.20	1.20	0.23	2.65		
	4th Cross		1	50.00	1.20	0.23	13.80		
	Damaged portion		1	40.00	5.00	0.23	46.00		
							358.57	1768.08	**633988.58**
4	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg\sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Royal Enclave								
	Main Road								

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
	Ch0-20		1	20.00	11.00	--	220.00		
	Ch20-80 LHS		1	60.00	5.50	--	330.00		
	Ch20-80 RHS		1	60.00	5.50	--	330.00		
	2nd Cross		1	45.00	5.00	--	225.00		
	3rd Main		1	35.00	4.50	--	157.50		
	Bad Reaches								
			5	2.00	2.50	--	25.00		
			8	1.20	1.20	--	11.52		
	4th Cross		1	50.00	1.20	--	60.00		
	Damaged portion		1	40.00	5.00	--	200.00		
							1559.02	29.68	**46271.71**
5	KSRRB 500-2: Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatement including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH Spec, Chapter 5 (P.No.161, I.No.21.2 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Royal Enclave								
	Main Road								
	Ch0-20		1	20.00	11.00	--	220.00		
	Ch20-80 LHS		1	60.00	5.50	--	330.00		
	Ch20-80 RHS		1	60.00	5.50	--	330.00		
	Ch80-460		1	375.00	8.00	--	3000.00		
	4th Cross		1	110.00	5.00	--	550.00		
	2nd Cross		1	45.00	5.00	--	225.00		
	3rd Main		1	35.00	4.50	--	157.50		
							4812.50		
	Deduct prime coat						-1559.02		
							3253.48	3.18	**10346.07**
6	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Royal Enclave								
	Main Road								
	Ch0-20		1	20.00	11.00	--	220.00		
	Ch20-80 LHS		1	60.00	5.50	--	330.00		
	Ch20-80 RHS		1	60.00	5.50	--	330.00		
	Ch80-460		1	375.00	8.00	--	3000.00		
	4th Cross		1	110.00	5.00	--	550.00		
	2nd Cross		1	45.00	5.00	--	225.00		
	3rd Main		1	35.00	4.50	--	157.50		
							4812.50	12.72	**61215.00**
7	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Royal Enclave								
	Main Road								
	Ch0-20		1	20.00	11.00	0.04	8.80		

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
	Ch20-80 LHS		1	60.00	5.50	0.04	13.20		
	Ch20-80 RHS		1	60.00	5.50	0.04	13.20		
	Ch80-460		1	375.00	8.00	0.04	120.00		
	4th Cross		1	110.00	5.00	0.04	22.00		
	2nd Cross		1	45.00	5.00	0.04	9.00		
	3rd Main		1	35.00	4.50	0.04	6.30		
							192.50	8013.60	1542618.00
8	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								
	Edge line	Sqm	2	685.00	0.10	--	137.00		
							137.00	542.72	74352.64
							Total Construction Cost		2391223.120
9	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	2171.40	27.00	58628.00
	Waste = 192.50 X 141 X 8 / 100 = 2171.4								
10							Cost towards Preparation of DPR LS		23913.00
11							Cost towards PMC / Third Party inspection LS		23913.00
								Sub Total	2497677.12
12							Miscellaneous and rounding off		2322.88
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

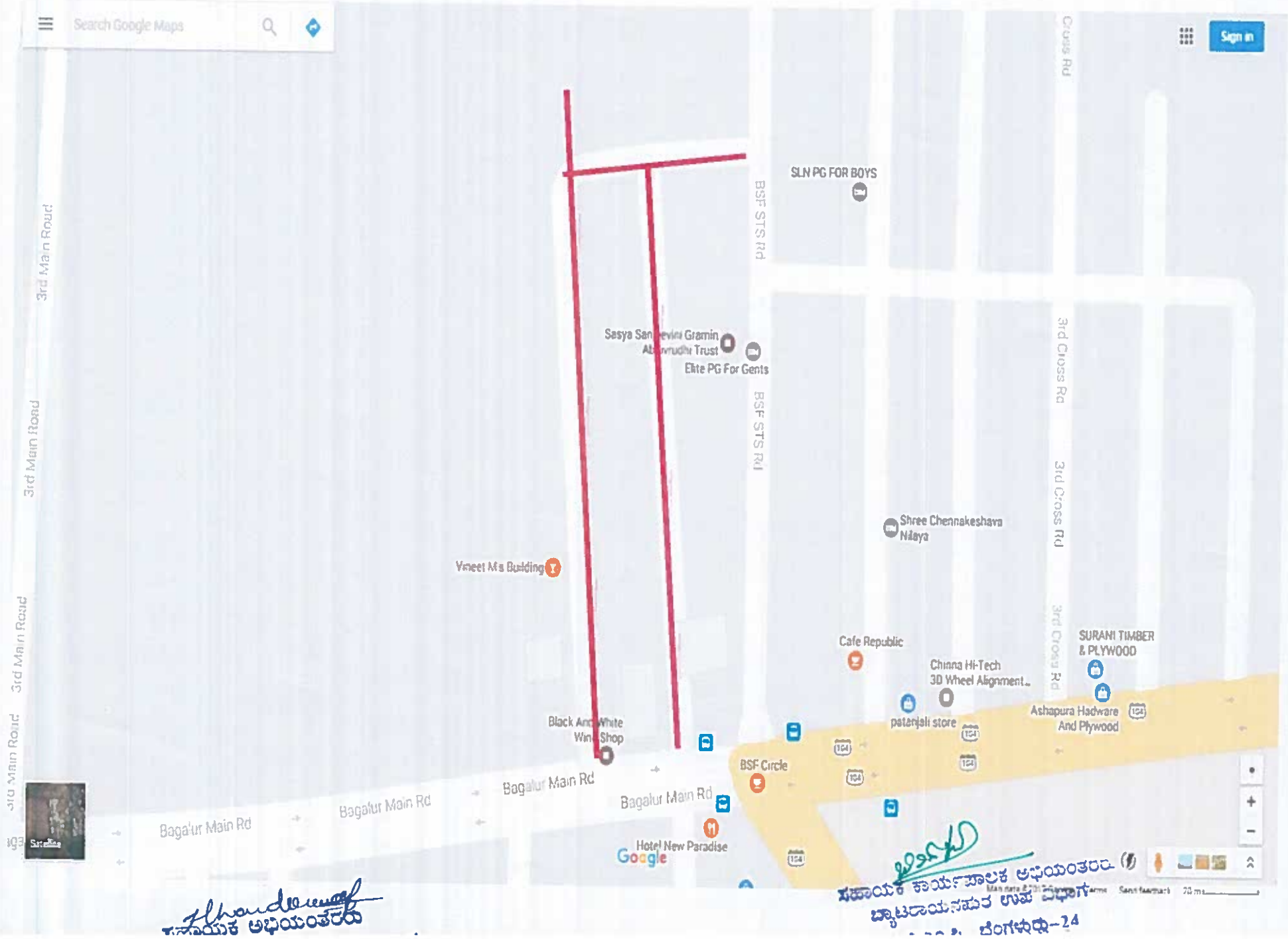
Executive Engineer

Technical Sanction
Accorded For Rs. 25.00 lakh only
Head of A/C P-3089
CER NO : 95 Dt: 22.07.1;

TA 1 — CE (YNK)

10. Improvements to Roads and Drains at Palanahalli, Dwarakanagara and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

KEY MAP -10. SIRI NAGARA



ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-24

ಸಹಾಯಕ ಅಭಿಯಂತರರು

KEY MAP – 10. DUTTA LAYOUT

ಸಹಾಯಕ ಅಭಿಯಂತರರು

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

KEY MAP – 10. VINAYAKA NAGAR 3RD MAIN

ಸಹಾಯಕ ಆಯುಕ್ತರು

ಸಹಾಯಕ ಕಂದಾಯ ಅಧಿಕಾರಿ
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-26

KEY MAP – 10. DWARAKA NAGAR

KEY MAP -10. BALAJI LAYOUT

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Improvements to Roads and Drains at Palanahalli, Dwarakanagara and surrounding areas in ward No 05 - Jakkur, Byatarayanapura Sub Division.

Est Cost: =50.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	KSRRB M300-1. Earth work excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5m, excavated surface levelled and sides neately dressed, the disposed earth to be levelled neatly after breaking of clods complete as per specification. MORTH / Chapter 3 (P.No.142, I.No.19.1 of PW, P&IWTD SR 2016-17)								
	Balaji Layout	Cum							
	Main Road		2	120.00	0.45	0.30	32.40		
	Siri nagara								
	1st Main		2	180.00	0.45	0.30	48.60		
	2nd Main		2	190.00	0.45	0.40	68.40		
	Cross Road		2	70.00	0.45	0.40	25.20		
	Palanahalli road		2	150.00	0.45	0.40	54.00		
	Cross Road in Vinayaka Nagar 1st Main Road		2	50.00	0.45	0.40	18.00		
	Culverts		2	6.50	2.00	1.05	27.30		
							273.90	186.92	**51197.39**
2	KSRB 4-1.2: Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 40mm and down size graded granite metal coarse aggregates @ 0.892 cum and fine aggregates @ 0.465 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.2 of PW,P&IWTD S.R 2016-17)								
	Bed Concrete	Cum							
	Culverts		2	6.50	2.00	0.15	3.90		
							3.90	5348.76	**20860.16**
3	KSRB 5.2-3: Providing and constructing granite size stone masonry in foundation cement mortor 1:6, stone hammered dressed in courses not less than 20cms high, bond stones at 2m. apart in each course including cost of materaials, labour, curing complete as per specifications. Specifcation No. KBS 5.1.13 (P.No.23, I.No.5.6 of PW, P&IWTD S.R 2016-17)								
	SSM Wall	Cum							
	Culverts		4	6.50	0.60	0.90	14.04		
							14.04	4438.22	**62312.61**
4	KSRB 15.1.1 Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar 1:3, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications. (P.No.113, I.No.15.1 of PW, P&IWTD S.R 2016-17)								
	SSM Wall	Sqm							
	Culverts		4	6.50	–	0.90	23.40		
							23.40	102.82	**2405.99**
5	KSRB 4-1.6: Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.878 cum and fine aggregates @ 0.459 cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation and plinth, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2. (P.No.12, I.No.4.6 of PW,P&IWTD S.R 2016-17)								
	Coping	Cum							
	Culverts		4	6.50	0.60	0.10	1.56		
							1.56	5767.46	**8997.24**

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
6	Providing and fixing RCC Precast cover slab of 250mm thick for drain in cement concrete M20 using graded granite jelly 20mm and down size with steel reinforcement, including form work, lift charges, curing and concrete finished surfaces on both sides etc, complete and as per drawing and the directions of Engineer in-charge. (Data Rate)								
	Cover Slab	Sqm							
	Culverts		2	6.50	1.80	--	23.40		
							23.40	5317.00	**124417.80**
7	KSRRB M 400-17, Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechaniqal mix plant carriage ' of mixed Material by tipper to site, laying in uniform layers with paver in sub- base/ base course on well prepared surface and compacting with vibratory roller to achieve the desired density.complete as per specifications. MORTH Specification No. 406 (P.No.158, I.No.20.18 of PW,P&IWTD SR 2016-17)								
	Road Portion	Cum							
	Balaji Layout								
	Main Road		1	40.00	5.00	0.23	46.00		
	CrossRoad		1	130.00	5.50	0.23	164.45		
	Cross Road in Bagaluru Main Road		1	100.00	4.50	0.23	103.50		
	Balaji Layout								
	Main Road		1	120.00	5.80	0.23	160.08		
	Siri nagara								
	1st Main		1	180.00	6.00	0.23	248.40		
	2nd Main		1	190.00	6.00	0.23	262.20		
	Cross Road		1	70.00	5.80	0.23	93.38		
	Palanahalli road		1	150.00	5.00	0.23	172.50		
	Cross Road in Vinayaka Nagar 1st Main Road		1	50.00	5.00	0.23	57.50		
							1308.01	1768.08	**2312666.32**
8	KSRRB M 500-6, Providing and applying primer coat with SS bitumen emulsion on prepared surface of granular Base such as WBM WMM including clearing of road surface and spraying primer at the rate of 0.60 kg\sqm using mechanical means complete as per specifications. As per MORTH specification clause No. 502 (P.No.161, I.No.21.6 of PW,P&IWTD SR 2016-17)								
	Road Portion	Sqm							
	Balaji Layout								
	Main Road		1	40.00	5.00	--	200.00		
	CrossRoad		1	130.00	5.50	--	715.00		
	Cross Road in Bagaluru Main Road		1	100.00	4.50	--	450.00		
	Balaji Layout								
	Main Road		1	120.00	5.80	--	696.00		
	Siri nagara								
	1st Main		1	180.00	6.50	--	1170.00		
	2nd Main		1	190.00	6.50	--	1235.00		
	Cross Road		1	70.00	6.00	--	420.00		
	Palanahalli road		1	150.00	5.00	--	750.00		
	Cross Road in Vinayaka Nagar 1st Main Road		1	50.00	5.00	--	250.00		
							5886.00	29.68	**174696.48**
9	KSRRB M500-7 : Providing and applying tack coat using 80/100 grade bitumen (VG10) on prepared black topped surfaces at 2.5 Kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications MORTH / Chapter 5 (P.No.161 I.No.21.7 of PW,P&IWTD SR of 2016-17)								
	For Laying BC	Sqm							
	Balaji Layout								
	Main Road		1	40.00	5.00	--	200.00		
	CrossRoad		1	130.00	5.50	--	715.00		
	Cross Road in Bagaluru Main Road		1	100.00	4.50	--	450.00		
	Balaji Layout								

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
	Main Road		1	120.00	5.80	--	696.00		
	Siri nagara								
	1st Main		1	180.00	6.50	--	1170.00		
	2nd Main		1	190.00	6.50	--	1235.00		
	Cross Road		1	70.00	6.00	--	420.00		
	Palanahalli road		1	150.00	5.00	--	750.00		
	Cross Road in Vinayaka Nagar 1st Main Road		1	50.00	5.00	--	250.00		
							5886.00	12.72	**74869.92**
10	KSRRB M500-19. Providing and laying bituminous concrete 30-40 mm compacted thickness with VG30 Bitumen grade using 40-60 HMP using crushed aggregates of grading II, premixed with bituminous binder at 5.4% of mix and filler, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRT&H specification clause No. 500.9 complete in all respects as per specifications. MORTH Specification No. 509 (P.No.165 of I.No.21.22.6 in PW,P&IWTD S.R 2016-17)								
	For Laying BC	Cum							
	Balaji Layout								
	Main Road		1	40.00	5.00	0.04	8.00		
	CrossRoad		1	130.00	5.50	0.04	28.60		
	Cross Road in Bagaluru Main Road		1	100.00	4.50	0.04	18.00		
	Balaji Layout								
	Main Road		1	120.00	5.80	0.04	27.84		
	Siri nagara								
	1st Main		1	180.00	6.50	0.04	46.80		
	2nd Main		1	190.00	6.50	0.04	49.40		
	Cross Road		1	70.00	6.00	0.04	16.80		
	Palanahalli road		1	150.00	5.00	0.04	30.00		
	Cross Road in Vinayaka Nagar 1st Main Road		1	50.00	5.00	0.04	10.00		
							235.44	8013.60	**1886721.98**
11	KSRRB M800-13. Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications. MORTH Specification No. 803.(P.No.185, I.No.24.15 of PW,P&IWTD SR 2016-17)								

Sl. No.	Description of work	Unit	No.	Length	Breadth	Depth	Quantity	Rate in Rs.	Amount in Rs.
				m	m	m			
	Edge line	Sqm	2	1030.00	0.10	--	206.00		
							206.00	542.72	111800.32
							Total Construction Cost		4830946.206
12	Add cost of Waste Plastic @ 8% of Bitumen weight								
	Bitumen = 141 kg/cum		--	--	--	--	2655.76	27.00	71706.00
	Waste = 235.44 X 141 X 8 / 100 = 2655.76								
13						Cost towards Preparation of DPR LS			48310.00
14						Cost towards PMC / Third Party inspection LS			48310.00
								Sub Total	4999272.21
15						Miscellaneous and rounding off			727.79
								Total	5000000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

For Tejus Consultants

Assistant Engineer | Assistant Executive Engineer | Executive Engineer

Technical Sanction
Accorded For ...Rs.50.00 lakh only
Head of A/C...P-3089....
CER NO :.....96..... Dt:..22.07.17

TA | CE (YNK)

11. Drilling of Borewells, Providing Pipeline, Motor and Electrification in Ward No.5 Jakkur, Byatarayanapura Sub-Devision

BRUHAT BANGALORE MAHANAGARA PALIKE

Project: Drilling of Borewells, Providing Pipeline, Motor and Electrification in ward no. 05 Jakkur, Byatarayanapura sub division.

Est Cost: =25.0Lakh

Sl. No.	Description of work	Unit	No.	Length m	Breadth m	Depth m	Quantity	Rate in Rs.	Amount in Rs.
1	Geophysical investigation of site for sinking Borewell for supplying drinking water to the habitation either through the Hand pump, MWS of P.W.S.S by vertical electrical sounding by adopting Venner or Schlumberger's method, including reconnaissance survey of geological formation, Gerophysical investigation of existing Ground Wate in the vicinity, its qualityf 1.0 meter in consolidated formation for proper seating of casing pipe, depth of drilling required to cover full depth of aquifer proposed to be tapped, probable yield and other information required including transportation of instrument and accessories to work site., engaging techinical personal and labour required etc., as per Specification and direction (P.48, I. 9.4) PRED SR 2012-13	Each BW	4				4	1882.00	7528.0
2	Sinking borewell of 165 mm dia clear using super fast hydraulic rig of capacity 250 PSIG & above CFM & above in all strats including over burden upto 20 mts fixing of casing pipes, collars and cap with necessary cutting, throading and welding including transportation of rig and supporing vehicles, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (excluding coat of casing pipes, collars, cap etc.,) P. 46 / I. 9.1 PRED SR 2012-13	Rmtr							
	0 to 50 m		4	50.00			200.00	306.00	61200.0
	50 to 100 m		4	50.00			200.00	400.00	80000.0
	100 to 150 m		4	50.00			200.00	445.00	89000.0
	150 to 200 m		4	50.00			200.00	470.00	94000.0
	200 to 250 m		4	50.00			200.00	544.00	108800.0
	250 to 300 m		4	50.00			200.00	583.00	116600.0
	300 to 350 m		4	50.00			200.00	622.00	124400.0
	Above 350m		4	50.00			200.00	658.00	131600.0
3	Supply of ISI mark 175 mm nominal bore, Plain end steel casing pipe - grade of Steel Fee 410 of wall thickness 5.4mm thick confirming to IS 4270 2001 and latest amendments, electric resistance welded steel tube material and confirming to IS 1387/1993 and manufactured by baseic open hearth electric or basic oxygen process in random length of 5 to 7 mts both ends threaded confirming tio IS 554/1985, one end fixied with socket confirming to IS 4270 2001 and the other end with screwed pipes ISI Marking weighing 25.10Kg/mtr (Inclusive of all taxes and durties) Prices include Collar-medium duty P. iii, I No. 84 PRED SR 2012-13	Rmtr							
			4	50.00			200.00	1325.00	265000.0
4	Providing 250mm dia PVC Pipe 6kg/cm SE PRED Approved Rate	Rmtr							
			4	18.00			72.00	754.47	54322.0

5	Providing and fixing 160mm Borewell Cap P. iii, I No. 85	Each							
			4				4	100.00	400.0
6	Supply and delivery at site brand New texmo/ innoval/ Lubi/ Sabar / Atalanta/ Calamal/ make suitable for vertical installation in 150mm dia bore well comprising of single stage or multistage CF pump close coupled by meaans of stainless steel coupling to suitable HP suitable speed totally enclosed and filled with pure drinking water (Wet type) squirrel cage submersible induction motor suitable for opertation of 3PH., 50 Hz, 380/440 volts AC supply fitted with required aqccessories such as suction, casing suction strainers sand guard Non return value etc. complete . The pump and motor shall form an integral unit with all the required fittings 12.50 HP 25 stage, ATALANTA< SUGNA< CRI, KIRLOSKAR and other Equivalent Pumps PWD SR 2016-17 P. XXXXII Item No. 24 including of all taxes	No							
	17.5 HP 30 Stage		4				4	74300	297200.0
7	Supplying of ISI marked galvanized mild steel tube (continously welded electric resistance welded (ERW) high frequency, induction welded (HFIW) Hot finished welded type of nominal bore given below screwed at both ends as per IS 554/1986 with latest amendments, pipes threaftes at one end and the other end protected asper specification in random lengths of 4 to 7 mtrs Confirming to IS 1239 part I/1990 with amendament 1-5 and with all its latest amendements if any. The pipes supplied should be with BIS mark No 3/08-09 2406/15.10.2008	Rmtr							
			4	250.00			1000.00	375.00	375000.0
8	Heavy Duty Collar 50 mm dia	Nos	176				176	130.00	22880.0
9	Supplying and drawing 3 core flat PVC sheathed submersible pump cable manufactured with electrolytic grade copper with flexible copper with low resistance conductor confirming to table 3 class 5 of IS 8130-1984 and virgin grade PVC insulation and powder coating extruded PVC sheathed suitable for working voltage upto 1100Volts as per IS-694:1990 & confirming to GTP of GROUP-A. P. No. 12 / I No. 2.10.4(1) 3C x 6 Sqm mm KPWD Electrical SR 2014-15	Mtr							
			8	255.00			2040.00	188.70	384948.0
10	Erection of pumpset including aligning and balancing with all necessary erection materials and labour including supply and erection of one pair supporting clamps, one borewell cap. Cable clips with bolts, nuts, valves guages etc., involoved in the job (Necessary GI pipe and specials with be supplied by the board at the site free of cost) (As per rate approved KUWS & DB for year 2008-09	No							
			4				4	3000.00	12000.0
11	Supplying and fixing 20"x20"x2.5" polished wood board made of not less than 15mm thick plank on both sides with planks made out of not more than 2 pieces and fixing the same to the wall using tapered inverted wooden plugs screws etc., P No. 44 / I No. 6.6.6 KPWD Electrical SR 2014-15	Each							
			4				4	302.00	1208.0

12	Supplying of 1.1 KV LT UG cable having aluminum conductor PVC insulated, extruded inner sheathed, galvanized, steel strip (except 2CX10Sq.mm wire armoured) confirming to IS-3975:1990 (No. of Strip indicated in GTP) & extruded PVC outer sheathed armoured cable with specified IS-1554 Part-1:1988 & confirming to GTP of GROUP-A P No. 55/ I No. 7.4.4 4 core 16 Sqmm KPWD Electrical SR 2014-15	Mtr							
			4	30.00			120.00	140.40	16848.0
13	Labour charges for laying of 1.1 KV class UG cable in existing trench GI pipe / stoneware pipe / on wall / on pole as required.In existing trench/duct. P No. 61 / I No. 7.8.1 6Sqmm to 16 Sqmm) KPWD Electrical SR 2014-15	Mtr							
			4	30.00			120.00	10.80	1296.0
14	Digging of trench of 0.6m deep x 0.50 mtr wide refilling the trench to the required ground level and consolidating etc., complete.(As per Civil SR KSRB I-2, P-7) P No. 61 / I. No. 7.9.3 KPWD Electrical SR 2014-15	Mtr							
	For Cutting Road Surface		4	25.00			100.00	85.00	8500.0
15	Supplying and fixing of class A (medium duty) GI pipe of wall thickness not less than 3.25mm on pole/wall/drain crossing with necessary clamping arrangements for UG cable of 1.1 KV P. No. 62 / I No. 7.12.1 KPWD Electrical SR 2014-15	Mtr							
	40mm dia GI pipe		4	4.00			16.00	345.00	5520.0
16	Supplying and fixing L.T. cast iron pot heads suitable for 1.1 KV class UG cable filled with necessary bitumen/insulating compound complete with terminals, clamps, bolts, nuts and washers etc., P. No. 62 / I.No. 7.13.2 KPWD Electrical SR 2014-15	No.							
	16Sqmm		4				4.00	280.00	1120.0
17	Supplying, fixing, wiring, earth electrode for grounding conduits, I.C. cutouts and other equipment's on the meter board using 40mm dia 2.90mm thick GI pipe 2.5 mtr long buried in a pit ... The pit should be filled with equal proportion of salt and charcoal 150mm all-round the pipe to complete depth. The connection from the pipe to the conduit etc., is to be established through GI wire of size as per ISI specification 7.3.3. of IS 732 using 12mm dia bolts, nuts, washers and check nuts etc., the pipe shall have 16 through holes of 122 mm dia, (P No. 55, I No. 7.1) KPWD Electrical SR 2014-15	No							
			4				4	2727.00	10908.0
18	Supplying & fixing of Porcelain fuse channel with cut out on existing wooden/panel using necessary nuts, bolts and washers.P No. 44 / I No. 6.7.2 KPWD Electrical SR 2014-15	No.							
	32 Amps		24				24	180.00	4320.0
19	KSRB 13-7.1-4: Providing and fixing in position 50mm nominal bore gun metal non-return valve horizontal type of approved make including cost of all materials, labour and HOM of equipments with all leads complete as per specifications NO KBS 13.2.16 / 13.13 Page No. 93 Item No. 13.55 / PWD SR 2016-17	Nos							
			4				4	1615.68	6463.0
	Basic Rate	1496.00							
	Area Weightage @ 8%	119.68							
	Total	1615.68							

20	Providing NP/CP waste unions conforming to ISI specifications and fixing them in position as per directions including cost of materials, fixtures and conveyance to work spot etc., complete. P. No. 95 / I. No. 13.81.3 PWD SR 2016-7	No							
	50mm dia		4				4	232.20	929.0
	Basic Rate	215.00							
	Area Weightage @ 8%	17.20							
	Total	232.20							
21	Supplying and fixing 50mm dia GI X nipple with ISI mark with all lead and lift loading unloading and labour charges etc complete	No							
			4	4.00			16	80.00	1280.0
22	Supplying shunt capaitors conforming to IS 2834, 3phase 400/440 volts grade for power factor improvement of rotating machinery, Capacitor in KVAR rating Nos. 2KVAR capacity with all lead and lift =, loading, unloading and labour charges etc complete as per specifications	No							
			4				4	350.00	1400.0
23	Supplying and fixing miniature circuit breakers on existing MCB distribution boards using necessary fixing materials and 'C' Type curve, indicator ON/OFF, energy cross-3 with Short circuit breaking capacity of 10K and complete wiring as required confirming to IEC 60898. 5-32Amps TPN P No. 47 / I No.6.16.5 KPWD SR 2014-15	No							
			4				4	1547.00	6188.0
24	Fabricating supplying and mounting MS box made out ... SWG suitable for floor / wall mounting, fully weather proof with provision for better heat dissipation, provided with hinged front cover, equipped with tamper proof locking arrangements, with suitable size clamps with necessary cable entry pipe with gland and box should be finished with 2 coats of red oxide primer paint and finally finished with approved colour enameled metal paint etc., complete P.No. 49, I. No. 6.40.2 KPWD Electrical SR 2014-15	Sq.Cm							
	16SWG		8	120.00	60.00		57600		
			4	300.00	25.00		30000		
							87600	0.33	28908.0
25	Supplying and delivery at site brand new star / Essen/ Lotus/Sun-shines/Adarsh/ GK Controls best indigenous make combined energy meter - cum- control panel board unit of size 600x450 x200 mm minimum mechanically strong vermin and water proof. The unit shall have two detachable doors suitable for operation on 3 ph, 50Hz, 380/440 volts, A.C supply with spring loaded latch, locking device with a key ribs should be provided inside the door, canopy apron and louvers ventilators shall be provided. the combined energy meter cum- control panel board unit suitable for operation. The panel board shall be fabricated on single unit in the above components for suitable pumpset. 12.5HP to 15 HP Star Delta Starter SERDED Rate	No.							
			4				4	11000	44000.0
26	Earthwork excavation for pipeline trenches including deporiting or bank up to a lead of 50 mtrs including shiriry and statting danger lighting and using site rails and boming poles at every 100 mtrs wherever necessary as directed in th following strructure manhole. Page No. 01/ Item No.1.2.2 / PRED SR 2012-13 Hard Soil	Cum							
			4	60.00	0.60	0.75	108.00		

							108.00	188.00	20304.0
	Basic Rate	188.00							
27	Providing and instalation at site of works P.V.C.Pipes including cost of pipes and specials and incluidng lowring into trenches, laying true to line, level and perfect linking at joints, leak proof including jointing encasing the pipe alround to a depth Not less than 15cm with grave or selected earth avalable from the execavation Etc., Page No.15 item No.3.4.2 b PRED SR 2012-13.	Rmtr							
	75 mm dia 6 KSC PVC pipe		4	60.00			240.00		
							240.00	157.00	37680.0
28	Refilling the basement and pipeline treanches with secleted available earthe for trench excavation including authority condition in layers from thedi including disponsary of the sunplus earth with a heavy 200 mtrs Page No. 3 / Item No. 1.6 / PRED SR 2012-13	Cum							
				Qty. Vide Item No. 27			108.00	61.00	6588.0
	Basic Rate	61.00							
29	KSRB 13.6.3-6 : Providing and fixing in position brass gate valve with C.I wheel of approved quality (screwed end) 50mm nominal bore including cost of all materials, labour and HOM of equipments with all leads complete as per specifications. Specification No. KBS 13.2.6/13.3 P. 92 / I.13.37 PWD SR - 2016-17	Each							
			8				8	2216.16	17729.0
	Basic Rate	2052.00							
	Area Weightage @ 8%	164.16							
	Total	2216.16							
						Total Construction Cost			2446067.000
63						Cost towards Preparation of DPR LS			24461.00
64						Cost towards PMC / Third Party inspection LS			24461.00
								Sub Total	2494989.00
67						Miscellaneous and rounding off			5011.00
								Total	2500000.00

Certificate.

1 The rates adopted based on the PWD SR, Bangalore circle for year 2016-17.
2 The provisions made in the estimate are necessary and essential.
3 The workspot was inspected and work is found to be necessary.
4 The area comes within the Bruhat Bangalore Mahanagara Palike limits.

TEJUS CONSULTANTS
Tejus Consultants

Assistant Engineer

Assistant Executive Engineer

Executive Engineer

Technical Sanction
Accorded For Rs.25.00 lakh only
Head of A/C P-3089
CER NO 97 **Dt:** 22.07.17

LTA ICE (YNK)